



LEADEX LDX-FM FIBER OPTIC TRANSMISSION



DESCRIPTION

LDX-FM series are frequency modulated (FM) fiber optics that transmits analog video (PAL, SECAM, NTSC compatible), audio and data (RS-232/422/485/Manchester/Biphase/TTL) signals through single mode (1310/1550nm) or multi-mode (850/1300nm) fiber.

An optical transmitter converts electrical input signals into modulated light for transmission over a fiber optic cable. Light Emitting Diode (LED) or Laser Diode is used at the light sources.

An optical receiver converts modulated light coming from an optical fiber back into the original electronic signals applied to the transmitter through photoelectric diode of either PIN or the Avalanche type as the detector. High dynamic range and special circuitry with AGC (Automatic Gain Control) & PLL (Phase-Lock-Loop) technology is considered in the

receiver's design to avoid saturation or distortion and guarantee bigger optical loss budget for longer distance transmission.

An optical transceiver is a combination or integration of transmitter and receiver, through which signals are converted and transmitted in both directions.

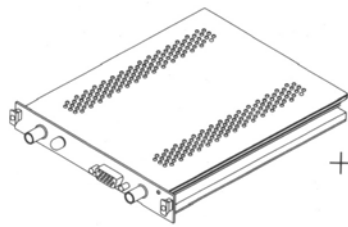
Stand Alone Type Fiber Optics

A stand-alone type fiber optics includes one card module and 1-slot or 2-slot sub-rack with external power supply (12-16VDC, 24VAC), which is usually used at remote site such as camera site in security system. There are 1-slot and 2-slot types according to the card modules inside.

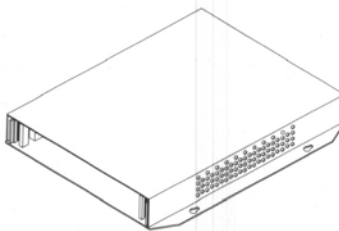


1-slot standalone type

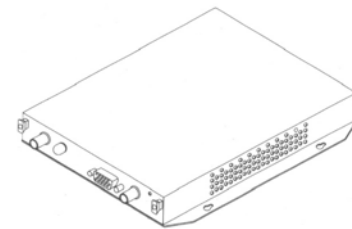
2-slot standalone type



Card module



Stand-alone sub-rack



Stand-alone fiber optic converter

Card Module Type Fiber Optics

A card module type fiber optics is card module only. It could not work independently and need card frame sub-rack to get power. Currently there are 1-slot and 2-slot card modules, according to the PCB number inside.



1-slot card module



2-slot card module

Card Frame Sub-rack

A card frame sub-rack offers up to 14 slots with 300W power supply, in which 1 or 2 slots will hold 1-slot or 2-slot card modules. The rack-mount frame chassis (19-inch/3U, 300W, 220VAC/110VAC) includes one power supply module and 14 slots. The power supply module offers power supply to each of the total 14 slots.



Rack Mount 14-slot Frame Chassis

FEATURES SUMMARY

- Transmit analog 1/2/4/8-ch video, 1/2/3-ch audio and/or data over 1 fiber
- Stand alone type and Card module types
- FM Modulation
- Cards are "Hot" Swapable
- Status Monitor LED
- No EMI, RFI, Ground Loops
- No Attraction to Lightning
- Surface Mount Technology
- BNC Video Connector
- DE15 Audio/Data Connector
- ST/SC/FC Optical Connector
- 8 MHz Video Bandwidth
- Meets EIA RS -250C Medium Haul
- Up to 8 video channels over ONE fiber.
- 15 dB Budget w50/125u; 18dB w62.5/125u MM Fiber
- 26dB Budget w/ SM Fiber
- 12VDC/24VAC Power Supply (stand alone)
- 14-Slots/EIA Sub-rack 300W Switching power supply, 110V/220V

SYSTEM SPECIFICATIONS

Video Performance

Video In/Output Impedance-----75 Ohm (unbalanced)
 Video In/Output Voltage-----0V p-p typ, 1.5V max
 Standard Video -----EIA, CCIR, NTSC, PAL
 In/output Video Signal----- 1.0Vp-p composite
 Power Consumption max (1-slot unit)-----3.5W
 Frequency Response-----5Hz to 8MHz
 Video Resolution ----- > 640 TV Line
 Differential Gain (10-90% APL)----- $\pm 1\%$ typ
 Differential Phase (10-90% APL)----- $\pm 1^\circ$ typ
 Field Tilt----- $<0.5\%$ max
 Signal to Noise Ratio-----67dB (weighted)
 FM Carrier Frequency-----70MHz

Audio Performance

Audio In/Output Impedance 600 Ohm, 10k Ohm or 47k Ohm, bal/unbalanced
 Audio In/Output Level -6 to +6 dBm
 Frequency Response 10 Hz to 20 KHz
 THD $<1\%$, 1 KHz @ max modulation
 Signal t Noise Ratio $>60\text{dB}$ (weighted)

Data Performance

Data Rate.....0-115.2Kbs
 Bit Error Rate 10^{-9}

OPTICAL PERFORMANCE

1-ch Video Series

Wave length	LED 850/1300nm		Laser 1310/1550nm
Fiber Type	50/125um MM	62.5/125um MM	9/125um SM
Output Power	-19dBm	-16dBm	-8dBm
Receiver sensitivity	-34dBm	-34dBm	-34dBm
Optical Loss Budget*	15dB	18dB	26dB
Optical Dynamic Range	26dB	26dB	26dB

(For video plus duplex data or audio, minus 2dBm in optical loss budget)

2/4/8-ch Video Series

Wave length	LED 850/1300nm		Laser 1310/1550nm
Fiber Type	50/125um MM	62.5/125um MM	9/125um SM
Output Power	-18dBm	-15dBm	-8dBm
Receiver sensitivity	-25dBm	-25dBm	-26dBm
Optical Loss Budget*	7dB	10dB	18dB
Optical Dynamic Range	20dB	20dB	20dB

*For video plus duplex/return data or audio, minus 2dBm in optical loss budget

General Parameters

Operating Temperature	-40°C +70°C
Operating Humidity	0 to 95% non condensing
Dimensions (1 slot card module).....	160mm Lx110mmW x 20mmH
Dimensions (2 slot card module).....	160mm Lx110mmW x 40mmH
Dimensions (1 slot stand alone).....	200mm Lx158mmW x 26mmH
Dimensions (2 slot stand alone)	200mm Lx158mmW x 55mmH
Weight (1 slot card module).....	350g
Weight (2 slot card module)	570g
Weight (1 slot stand alone)	680g
Weight (2 slot stand alone)	970g
Mean Time Between Failures (MTBF).....	>100,000 Hrs

ORDER INFORMATION (CONVENTIONAL MODELS ONLY)

(For MM series, change the LDX-S to LDX-M, and describe the optical connectors in your PO)










Item	Model No.	Description-I	Description-II
1	LDX-S100TA	1 V ↓	Transmitter. 1 video only. SM.
	LDX-S100RA	1 V ↓	Receiver. 1 video only. SM.
2	LDX-S200TA	2 V ↓	Transmitter. 2 video only. SM.
	LDX-S200RA	2 V ↓	Receiver. 2 video only. SM.
3	LDX-S400TA	4 V ↓	Transmitter. 4 video only. SM.
	LDX-S400RA	4 V ↓	Receiver. 4 video only. SM.
4	LDX-S800TA	8 V ↓	Transmitter. 8 video only. SM.
	LDX-S800RA	8 V ↓	Receiver. 8 video only. SM.
4	LDX-S100XA	1 V ↓ ↑	Tranceiver. 1 bi-directional video. SM.
	LDX-S100XB	1 V ↓ ↑	Tranceiver. 1 bi-directional video. SM.
5	LDX-S200XA	2V ↓ ↑	Tranceiver. 2 bi-directional video. SM.
	LDX-S200XB	2V ↓ ↑	Tranceiver. 2 bi-directional video. SM.
6	LDX-S400XA	4 V ↓ ↑	Tranceiver. 4 bi-directional video. SM.
	LDX-S400XB	4 V ↓ ↑	Tranceiver. 4 bi-directional video. SM.

7	LDX-S101TA-R	1 V ↓ + 1 D ↑	Transmitter. 1 video plus 1 return data. SM
	LDX-S101RB-T	1 V ↓ + 1 D ↑	Receiver. 1 video plus 1 return data. SM
8	LDX-S101TA-X	1 V ↓ + 1 D ↓ ↑	Transmitter. 1 video plus 1 duplex data. SM
	LDX-S100RB-X	1 V ↓ + 1 D ↓ ↑	Receiver. 1 video plus 1 duplex data. SM
9	LDX-S111TA-XX	1 V ↓ + 1 A ↓ ↑ + 1 D ↓ ↑	Transmitter. 1 video plus 1 duplex audio and 1 duplex data. SM
	LDX-S111RB-XX	1 V ↓ + 1 A ↓ ↑ + 1 D ↓ ↑	Receiver. 1 video plus 1 duplex audio and 1 duplex data. SM
10	LDX-S112TA-XX	1 V ↓ + 1 A ↓ ↑ + 2 D ↓ ↑	Transmitter. 1 video plus 1 duplex audio and 2 duplex data. SM
	LDX-S112RB-XX	1 V ↓ + 1 A ↓ ↑ + 2 D ↓ ↑	Receiver. 1 video plus 1 duplex audio and 2 duplex data. SM
11	LDX-S121TA-XX	1 V ↓ + 2 A ↓ ↑ + 1 D ↓ ↑	Transmitter. 1 video plus 2 duplex audio and 1 duplex data. SM
	LDX-S121RB-XX	1 V ↓ + 2 A ↓ ↑ + 1 D ↓ ↑	Receiver. 1 video plus 2 duplex audio and 1 duplex data. SM
12	LDX-S103TA-XX	1 V ↓ + 3 D ↓ ↑	Transmitter. 1 video plus 3 duplex data. SM
	LDX-S103RB-XX	1 V ↓ + 3 D ↓ ↑	Receiver. 1 video plus 3 duplex data. SM
13	LDX-S201TA-R	2 V ↓ + 1 D ↑	Transmitter. 2 video plus 1 return data. SM
	LDX-S201RB-T	2 V ↓ + 1 D ↑	Receiver. 2 video plus 1 return data. SM
14	LDX-S201TA-X	2 V ↓ + 1 D ↓ ↑	Transmitter. 2 video plus 1 duplex data. SM
	LDX-S200RB-X	2 V ↓ + 1 D ↓ ↑	Receiver. 2 video plus 1 duplex data. SM
15	LDX-S211TA-XX	2 V ↓ + 1 A ↓ ↑ + 1 D ↓ ↑	Transmitter. 2 video plus 1 duplex audio and 1 duplex data. SM
	LDX-S211RB-XX	2 V ↓ + 1 A ↓ ↑ + 1 D ↓ ↑	Receiver. 2 video plus 1 duplex audio and 1 duplex data. SM
16	LDX-S212TA-XX	2 V ↓ + 1 A ↓ ↑ + 2 D ↓ ↑	Transmitter. 2 video plus 1 duplex audio and 2 duplex data. SM
	LDX-S212RB-XX	2 V ↓ + 1 A ↓ ↑ + 2 D ↓ ↑	Receiver. 2 video plus 1 duplex audio and 2 duplex data. SM
17	LDX-S221TA-XX	2 V ↓ + 2 A ↓ ↑ + 1 D ↓ ↑	Transmitter. 2 video plus 2 duplex audio and 1 duplex data. SM
	LDX-S221RB-XX	2 V ↓ + 2 A ↓ ↑ + 1 D ↓ ↑	Receiver. 2 video plus 2 duplex audio and 1 duplex data. SM
18	LDX-S203TA-X	2 V ↓ + 3 D ↓ ↑	Transmitter. 2 video plus 3 duplex data. SM

	LDX-S203RB-X	2V ↓ + 3 D ↓ ↑	Receiver. 2 video plus 3 duplex data. SM
	LDX-S401TA-R	4V ↓ + 1D ↑	Transmitter. 4 video plus 1 return data. SM
19	LDX-S401RB-T	4V ↓ + 1D ↑	Receiver. 4 video plus 1 return data. SM
	LDX-S401TA-X	4V ↓ + 1 D ↓ ↑	Transmitter. 4 video plus 1 duplex data. SM
20	LDX-S400RB-X	4V ↓ + 1 D ↓ ↑	Receiver. 4 video plus 1 duplex data. SM
	LDX-S411TA-XX	4V ↓ + 1 A ↓ ↑ + 1 D ↓ ↑	Transmitter. 4 video plus 1 duplex audio and 1 duplex data. SM
21	LDX-S411RB-XX	4V ↓ + 1 A ↓ ↑ + 1 D ↓ ↑	Receiver. 4 video plus 1 duplex audio and 1 duplex data. SM
	LDX-S412TA-XX	4V ↓ + 1 A ↓ ↑ + 2 D ↓ ↑	Transmitter. 4 video plus 1 duplex audio and 2 duplex data. SM
22	LDX-S412RB-XX	4V ↓ + 1 A ↓ ↑ + 2 D ↓ ↑	Receiver. 4 video plus 1 duplex audio and 2 duplex data. SM
	LDX-S421TA-XX	4V ↓ + 2A ↓ ↑ + 1D ↓ ↑	Transmitter. 4 video plus 2 duplex audio and 1 duplex data. SM
23	LDX-S421RB-XX	4V ↓ + 2 A ↓ ↑ + 1D ↓ ↑	Receiver. 4 video plus 2 duplex audio and 1 duplex data. SM
	LDX-S403TA-X	4V ↓ + 3 D ↓ ↑	Transmitter. 4 video plus 3 duplex data. SM
24	LDX-S403RB-X	4V ↓ + 3 D ↓ ↑	Receiver. 4 video plus 3 duplex data. SM
	LDX-S440TA-T	4V ↓ + 4 A ↓	Transmitter. 4 video plus 4 audio. SM
25	LDX-S440RB-R	4V ↓ + 4 A ↓	Receiver. 4 video plus 4 audio. SM
	LDX-S101XA-X	1V ↓ ↑ + 1 D ↓ ↑	Tranceiver. 1 bi-directional video plus 1 duplex data. SM.
23	LDX-S101XB-X	1V ↓ ↑ + 1 D ↓ ↑	Tranceiver. 1 bi-directional video plus 1 duplex data. SM.
	LDX-S110XA-X	1V ↓ ↑ + 1 A ↓ ↑	Tranceiver. 1 bi-directional video plus 1 duplex audio. SM.
24	LDX-S110XB-X	1V ↓ ↑ + 1 A ↓ ↑	Tranceiver. 1 bi-directional video plus 1 duplex audio. SM.
	LDX-S111XA-XX	1V ↓ ↑ + 1 A ↓ ↑ + 1 D ↓ ↑	Tranceiver. 1 bi-directional video plus 1 duplex audio and 1 duplex data. SM.
25	LDX-S111XB-XX	1V ↓ ↑ + 1 A ↓ ↑ + 1 D ↓ ↑	Tranceiver. 1 bi-directional video plus 1 duplex audio and 1 duplex data. SM.
	LDX-S201XA-X	2V ↓ ↑ + 1 D ↓ ↑	Tranceiver. 2 bi-directional video plus 1 duplex data. SM.
26	LDX-S201XB-X	2V ↓ ↑ + 1 D ↓ ↑	Tranceiver. 2 bi-directional video plus 1 duplex data. SM.
	LDX-S210XA-X	2V ↓ ↑ + 1 A ↓ ↑	Tranceiver. 2 bi-directional video plus 1 duplex audio. SM.
27	LDX-S210XB-X	2V ↓ ↑ + 1 A ↓ ↑	Tranceiver. 2 bi-directional video plus 1 duplex audio. SM.

	LDX-S211XA-XX	2V ↓ ↑ +1 A ↓ ↑ +1 D ↓ ↑	Tranceiver. 2 bi-directional video plus 1 duplex audio and 1 duplex data. SM.
28	LDX-S211XB-XX	2V ↓ ↑ +1 A ↓ ↑ +1 D ↓ ↑	Tranceiver. 2 bi-directional video plus 1 duplex audio and 1 duplex data. SM.
29	LDX-14S-PSM	14-SLOTS	14-slots card frame chassis with 300W power supply.
30	LDX-01S-PSM	01-SLOTS	1-slot sub-rack with power supply adapter. 12VDC or 24VAC
31	LDX-02S-PSM	02-SLOTS	2-slot sub-rack with power supply adapter. 12VDC or 24VAC

PRODUCT PHOTO BANKS

		
1 Video Series	2 Video Series	2 Video plus audio/data
		
4 Video or 2 Bi-directional video	8 Video or 4 Bi-directional video	1 Bi-directional Video plus audio/data
		
1 Video plus audio/data	4 Video plus audio/data	Audio/Data only

PART NUMBER LAYOUT

Part# Layout Of LDX-FM Series Fiber Optics

